What is claimed is:

1. A magneto-optical recording medium including a recording layer, an intermediate layer and a reproduction layer in which data is transferred from the recording layer to an aperture between two mask regions generated along the scanning direction of the reproduction layer by temperature distribution through beam spot scanning, thereby reading the data out, wherein

a mask layer having a direction of easy magnetization extending in an in-plane direction at room temperature is formed on the reproduction layer, the mask layer having magnetic property for controlling expansion in a lateral direction of the aperture between the two mask regions generated in front and behind along the scanning direction under the temperature distribution given by the beam spot.

2. A magneto-optical recording medium as set forth in claim 1, wherein the mask layer shows a direction of easy magnetization extending in a direction perpendicular to the layer in a region of a predetermined reproduction temperature given by the beam spot irradiation and shows a direction of easy magnetization extending in an in-plane direction in a temperature region lower than or higher than the reproduction temperature region.

3. A magneto-optical recording medium including at least

a recording layer, an intermediate layer and a reproduction layer and reproducing data in a magnetic super resolution mode, wherein

a mask region occurring in accordance with temperature distribution given by an optical beam irradiated during reproduction and a mask layer for controlling the expansion of a reproduction aperture defined by the mask region are formed on the reproduction layer.

4. A magneto-optical recording medium as set forth in claim 3, wherein the mask layer is made of GdFeCo which is a rare-earth transition metal having a direction of easy magnetization extending in an in-plane direction at room temperature, in which Gd is contained in an atomic percentage of $26 \leq Gd \leq 30$ and Co is contained in an atomic percentage of $20 \leq Co \leq 30$.

5. A magneto-optical recording medium as set forth in claim 3 or 4, wherein the mask layer has a Curie temperature higher than that of the recording layer, intermediate layer and reproduction layer, shows almost perpendicular hystersis characteristic in a reproduction temperature region given by an optical beam and exhibits oblique hystersis characteristic in temperature regions lower and higher than the reproduction temperature region.

6. A magneto-optical recording medium as set forth in any one of claims 3 to 5, wherein a thickness of the mask layer

is in the range of 3 to 67 % of a thickness of the reproduction layer.

7. A magneto-optical recording medium comprising:

a recording layer made of TbFeCo which has a direction of easy magnetization extending in a direction perpendicular to the layer and shows a transition metal-rich magnetization;

an intermediate layer made of GdFeCo, GdFeCoSi or GdFe which has a direction of easy magnetization extending in an in-plane direction at room temperature and shows a rare earth element-rich magnetization;

a reproduction layer made of GdFeCo or GdDyFeCo which has a direction of easy magnetization extending in a direction perpendicular to the layer and shows a transition metal-rich magnetization; the layers being stacked in this order, wherein

a mask layer made of GdFeCo which is formed on the reproduction layer, has a direction of easy magnetization extending in an in-plane direction at room temperature, shows a rare earth element-rich magnetization, and exhibits a Curie temperature higher than that of said layers.

8. A magneto-optical recording medium as set forth in claim 7, wherein GdFeCo consisting the mask layer contains Gd in the range of 26 to 30 atomic% and has a compensation temperature between the room temperature and the Curie

temperature.

9. A reproduction method for a magneto-optical recording medium, the magneto-optical recording medium being a magnetic super resolution type magneto-optical recording disk of multilayer structure including at least a recording layer, an intermediate layer, a reproduction layer and a mask layer stacked in this order and having a plurality of recording tracks arranged at a predetermined track pitch in a radius direction, the reproduction method transferring data which is magnetically recorded in the recording layer of each track to the reproduction layer, thereby reproducing the data, wherein

a track to be read is scanned with a light beam having a spot diameter larger than the track pitch under a state where a reproduction magnetic field is applied in a direction perpendicular to a surface of the disk such that the data in the track to be read is exchanged-coupled to a first reproduction aperture defined between two mask regions generated on the reproduction layer in front and behind along the track direction by temperature distribution through the light beam irradiation, and the data is passed through a second reproduction aperture generated in the mask layer for controlling expansion of the first reproduction aperture in a disk radius direction, thereby reproducing the data.

10. A reproduction apparatus for a magneto-optical recording medium, the magneto-optical recording medium

being a magnetic super resolution type magneto-optical recording disk of multilayer structure including at least a recording layer, an intermediate layer, a reproduction layer and a mask layer stacked in this order and having a plurality of recording tracks arranged at a predetermined track pitch in a radius direction, the reproduction apparatus being used for transferring data which is magnetically recorded in the recording layer of each track to the reproduction layer, thereby reproducing the data, wherein

the reproduction apparatus comprises;

a mounting means which is connected with a driving mechanism and rotatably mounts the magneto-optical disk;

a magnetic field generating device for applying a reproduction magnetic field in a direction perpendicular to a surface of the mounted disk;

an optical system for irradiating a reproduction light beam having a spot diameter larger than the track pitch onto the mask layer side of the disk; and

a signal processing means for detecting reflection of the reproduction light beam from the disk and modulating it to an electrical signal,

the reproduction apparatus reproduces data by scanning a track to be read with a light beam having a spot diameter larger than the track pitch under a state where a reproduction magnetic field is applied in a direction

perpendicular to a surface of the disk such that the data in the track to be read is exchanged-coupled to a first reproduction aperture defined between two mask regions generated on the reproduction layer in front and behind along the track direction by temperature distribution through the light beam irradiation, and passing the data through a second reproduction aperture generated in the mask layer for controlling expansion of the first reproduction aperture in a disk radius direction.

11. A magneto-optical recording medium comprising four magnetic layers including a mask layer, a reproduction layer, an intermediate layer and a recording layer, wherein the reproduction layer and the recording layer each have a direction of easy magnetization extending in a layer stacking direction at room temperature, the mask layer and the intermediate layer each have a direction of easy magnetization extending in an in-plane direction at room temperature, the mask layer, the reproduction layer, the intermediate layer and the recording layer have Curie temperatures Tc1, Tc2, Tc3 and Tc4, respectively, which satisfy relationships of Tc3<Tc2, Tc3<Tc4 and Tc3<Tc1, and the intermediate layer is made of a rare earth transition metal showing a rare earth element-rich magnetization and the mask layer has a region of magnetization in a perpendicular direction surrounded by regions of magnetization in an in-plane direction at a certain

temperature.

12. A magneto-optical recording medium as set forth in claim 1, wherein the mask layer is made of GdFeCo in which Gd is contained in the range of 26 to 30 atom% and Co is contained in the range of 20 to 30 atom%.

13. A magneto-optical recording medium as set forth in claim 11 or 12, further comprising a nonmagnetic layer provided between the mask layer and the intermediate layer.

14. A magneto-optical recording medium as set forth in claim 13, wherein the nonmagnetic layer is composed of a material selected from the group consisting of SiN, SiO_2, AlN, C, ZnS-SiO_2, Al, AlTi, AlCr, Pt, Au, Ag, Si and Ge.

15. A magneto-optical recording medium as set forth in any one of claims 11 to 14, further comprising a magnetic layer which has a direction of easy magnetization extending in an in-plane direction at room temperature and is exchanged-coupled to the mask layer.

16. A magneto-optical recording medium as set forth in claim 15, wherein the magnetic layer contains Gd.

17. A magneto-optical recording medium as set forth in any one of claims 11 to 16, wherein three magnetic layers including the mask layer, the reproduction layer and the intermediate layer each contain Gd.